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Perceived Affect, User Experience, and the Use of the Web

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Abstract

This paper focuses on the effects of users' web experience on the web usage. Using a modification of the Technology Acceptance Model (TAM), the relationships between web quality and web task types and perceptual variables as usefulness, ease of use, and affect are examined. The role of prior user experience with the web is also examined in the context of predicted use of the web.

Keywords: Web usage, user experience, perceived affect, TAM

Introduction

People use the Web for multiple purposes, including information gathering, interpersonal communication, transaction activities, entertainment activities, and work-related activities (GVU 10th Survey 1998). Based on the level of Internet experience, Horrigan (2000) classified Internet users as new users or experienced users, and found that new Internet users tend to engage in entertainment and other personal activities, as opposed to work-related activities. This suggests that web usage is in part dependent on the extent of prior web experience. Several studies have been conducted to examine user acceptance in the context of the web (Morris and Dillon 1997; Teo et al. 1999; Lederer et al. 2000; Gefen and Straub 2000), many of which employ the technology acceptance model (TAM) and its variants (Davis 1989; Davis et. al. 1989). However, user characteristics and web task characteristics are largely ignored in prior research. This paper investigates the effects of these and the role of prior web experience in understanding web usage.

User Attitude and Technology Acceptance

Traditionally, attitude has been considered as consisting of three components: cognitive, affective, and conative. The cognitive component of attitude is related to a person's knowledge and belief, and the affected component refers to the person's feeling. The conative component represents a person's action or behavior. The more contemporary view of relationships among the components of attitude is that both the cognitive component (beliefs) and the affective component (feelings) determine attitude, and the conative component (behavioral intention) is influenced by attitude (Engel 1995, pp. 364-367). This suggests indicate that there are two aspects to determining an individual's attitude: the rational aspect (cognitive component, beliefs) and the emotional aspect (affective component, feelings). The Theory of Reasoned Action (TRA) has the similar concept with the contemporary view of attitude. TRA suggests that a person's behavior can be predicted by person's intention and defines that the personal factor (attitude) and the social factor (subjective norm) are the determinants for a person's intention (Ajzen and Fishbein 1980). Based on TRA, Davis (1989) developed the Technology Acceptance Model (TAM) – using two specific beliefs, perceived usefulness (PU), and perceived ease of use (PEOU), to predict IT acceptance.

Several studies have been conducted to examine the user acceptance related to the Internet World Wide Web by using TAM. Morris and Dillon (1997) examined the of the Netscape web browser. They found that TAM explains and predicts the use of the web browser well. However, this research focused on the use of the web software, not on the use of web as an application or system. Lederer et al. (2000) used the simplified TAM to examine the web usage for work-related tasks. They identified several antecedents to web usefulness and ease of use and concluded that ease of understanding and ease of finding predict ease of use, and that information quality predicts usefulness for revisited sites. Teo et al. (1999) focused on both intrinsic (perceived

enjoyment) and extrinsic (perceived usefulness) motivation for the use of the Internet. They demonstrated that the effects of perceived usefulness are much stronger than perceived enjoyment. Gefen and Straub (2000) explored the relative importance of PEOU on different level of E-Commerce adoption (intended inquiry, intended purchase). These studies demonstrate that TAM is an effective model to explain or predict Internet usage.

Perceived Affect

TRA and TAM emphasize the cognitive component (beliefs) of attitude. IT acceptance has been considered to have little to do with affective component (feelings, emotion). However, the web is quite different from traditional IT. The user interface represents a major component of the design of web pages. In addition, content is frequently geared to personal tastes, and entertainment forms a sizeable portion of the available options. Look and feel factors are considered important elements in evaluating web sites (Olsina et al. 1999; Levi and Conrad 1996). Affective components have examined the effects of motivation on the usage of IS. Motivation may be either extrinsic or intrinsic. Extrinsic motivation is usually reward-based; intrinsic motivation, on the other hand, can be represented by perceived enjoyment, perceived fun, and playfulness (Teo et al. 1999; Igbaria et al. 1996; Davis et al. 1992; Webster and Martocchio 1992). Perceived enjoyment is defined as "the extent to which activity of using the computer is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated" (Davis et al. 1992). In this paper, we extend Davis' perceived enjoyment definition and include other intrinsic motivation elements such as perceived fun, perceived playfulness. We characterize the extended affective components as perceived affect (PA). Components of perceived affect, viz. perceived enjoyment/fun, have been found to be affected by perceived complexity (Davis et. al. 1992; Igbaria et. al. 1996).

User Experience

One of major factors which influence IS acceptance is user's prior experience of IS. Venkatesh and Davis (1996) found that the prior experience of IS has a positive impact on EOU. Igbaria et al. (1996) concluded that the prior computer experience influences perceived usage and variety of use directly and indirectly through perceived ease of use (PEOU) and perceived usefulness (PU). Similarly, Taylor and Todd (1995) found that there is a stronger relationship between behavioral intention and behavior for experienced users than for inexperienced users. Thompson et al. (1994) examined the direct and indirect effects of experience on the PC utilization. They also found that the moderating influence of experience on the relation between antecedent constructs and PC utilization. These findings show that prior user experience is one of critical factors to explain IS acceptance. According to Horrigan (2000), the level of users' experience also affects the Internet usage. Based on these results, we include user experience of the web as a moderating factor to investigate web usage.

Research Model and Methodology

The proposed research model (Figure 1) represents an extension of the technology acceptance model. The model examines the impact of perceived affect (PA) and the web experience on a user's web usage. PA is considered to be one of the essential components to explain users' web acceptance.

The model is an exploratory model. Thus, both antecedent factors will influence all three user perception factors, all of which are expected to influence usage. In a similar vein, the moderator variable is expected to influence all relationships between antecedent and user perception factors, as well

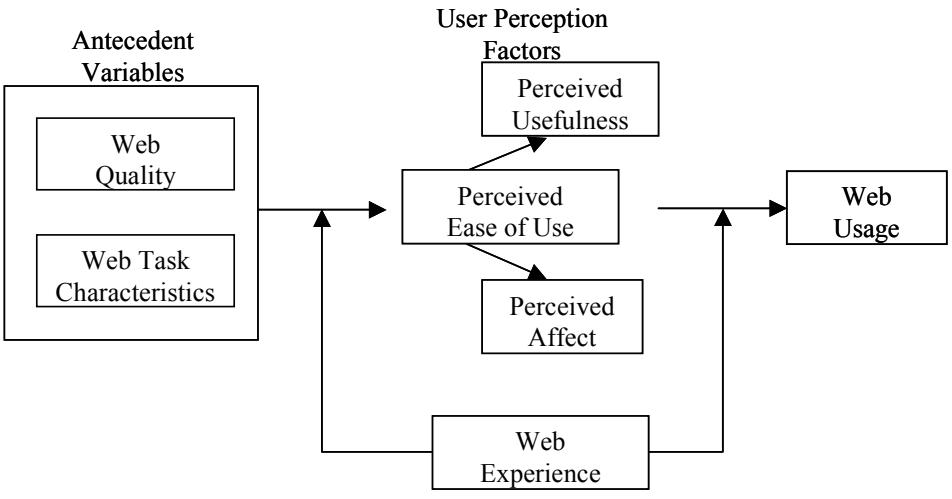

Figure 1. Proposed Research Model

as those between user perception factors and usage. Based on the research model, we posit the following propositions:

> ***Proposition 1****: Web Quality and Web Task Characteristics will influence the user perception factors (PU, PEOU, PA).*
> ***Proposition 2****: Perceptual factors (PU, PEOU, PA) will influence Web Usage.*
> ***Proposition 3****: User experience will moderate the relationships between the antecedent factors (Web quality, Web Tasks) and the perception factors (PU, PEOU, PA).*
> ***Proposition 4****: User experience will moderate the relationships the perception factors (PU, PEOU, PA) and Web Usage.*

In an effort to provide greater control during the test of these propositions, a laboratory experiment setting will be employed. Gefen and Straub (2000) adopted a free simulation experimental method. In free simulation experiments, subjects are allowed to act freely in the experimental boundaries and asked to respond to the experimental tasks naturally. In this study, we also propose employing the free simulation experimental method. Measurement of the constructs in the research will employ prior measures and instruments (Davis 1989; Igbaria et al. 1996; Teo et al. 1999; Lederer et al. 2000; Gefen and Straub 2000), with suitable extensions for the affective components. Several measured have been used to evaluate web site quality. Olsina et al. (1999) developed a web quality framework to evaluate web sites for universities. They included usability, functionality, site reliability, and efficiency. Levi et al. (1996) proposed usability principles for evaluating web site prototypes. Lederer et al. (2000) classified several antecedent variables of PU and PEOU. In addition, additional criteria to evaluate including functionality, design, content, originality, and effectiveness as proposed by WorldBestWebsites.com will be considered. Based on the previous studies, we classify the criteria for web quality into 3 categories as Table 1. We use these criteria to choose web sites for our study. In addition, we expect each criterion be related to perception factors. Several rounds of pretesting of the instrument are envisioned.

Table 1. Web Quality Criteria

Criteria	Detailed Items	Relating Perception Factors
Information (content) Quality	Accuracy, Currency, Reliability, Completeness, Uniqueness, Purpose	PU
Representation Quality	Aesthetics, Graphic design, Layout and Alignment, Originality	PA
Usability & Functionality	Accessibility, Navigation, Consistency, Site Understandability, Flexibility	PEOU

Given that there are numerous uses for the web, it is important to select those that will allow for the affective components to be examined. Accordingly, we propose the use of three frequent activities of the web – information utility, transaction activities, and entertainment activities – to investigate users' web usage.

Implications

This research examines web usage using several perceptual factors in different contexts. Based on the differences in web quality and web tasks, we expect to see different perception levels and therefore different degree of web usage. Also, we expect that a user's prior web experience will be a moderator of the overall web usage in the context of the given task. We theorize that inexperienced users are more likely to be interested in entertainment activities, and they will be somewhat reluctant to participate in transaction activities. On the other hand, the experienced users are more likely to engage in transaction activities, provided they have confidence and trust in the system. In addition, we expect that perceived affect be an important factor in predicting web usage. These have important implications for web site designers, given that the competition for user attention is becoming more pronounced.

References

References are available at http://www.uwm.edu/~hangjzo/amcis2001/references.html.